

NAVAL UNPREPAREDNESS OF PACIFIC COAST

Brief of Specific Recommendations of "Helm"
Commission on Navy Yards and Naval Stations
for the Naval Defense of the Pacific Coast from
San Diego, California, to Dutch Harbor, Alaska

Commission on Navy Yards and Naval Stations

Appointed under act of Congress, Approved August 29, 1916
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COMPILER'S NOTE

(1) References are to the reports of the Navy Yard commission as follows:

Report I, dated December 30th, 1916;
Report II, dated January 25th, 1917;
Report III, dated January 31st, 1917;
Report IV, dated May 14th, 1917;
Report V, dated September 29th, 1917.

(2) For convenience of reference the compiler numbered the paragraphs of this brief and gave them descriptive headings. They do not so appear in the Helm Reports.

(3) Tabulations under headings "Appropriations Recommended" and "Expenditures Recommended," and paragraphs under headings "Introductory Note" and "Summary of Pertinent Phrases," were arranged by the compiler.

Introductory Note

This brief is an endeavor to set forth in a concise yet intelligent form the recommendations contained in the five voluminous reports of the Helm commission for the naval defenses of the Pacific Coast. These reports, though made by officers of great professional reputation, have had little attention. So far there has been no appropriation to make the recommendations effective, for they were submitted to Congress at a time when men, money and materials were most urgently needed for the desperate fighting on the "Western Front."

The ominous change in Pacific Coast conditions brought about by the collapse of Russia and the present attitude of Mexico makes essential, however, the immediate adoption of the Helm program.

Adequate navy yard facilities and bases for submarines and naval aircraft were urged by the Helm commission, shortly before the United States became involved in the world war, as imperative needs of the moment. Assuredly they are now more emphatically necessary.

May 15, 1918.

General Conditions

Pacific Coast Naval Defenses

Marked Expansion of Navy Yard Facilities Necessary

¶1

First—That in order to be as effectively operated in the Pacific as in the Atlantic, the size of the fleet now existing and authorized makes desirable immediate provision for a marked expansion in berthing, docking and repair facilities on the Pacific Coast.

Second—That the Pacific yards are especially lacking in berthing space and adequate dry-dock accommodations.

Third—The facilities at navy yards should be proportioned as far as practicable to the needs of the fleet to be based thereon in time of war. In determining a definite policy of expansion for navy yard facilities, the ratio of the fleet usually operating in the Atlantic to that portion in the Pacific should be considered. Likewise, probable increase of the fleet in either ocean, at short notice, and whether same will be for a long or for a short period, and the relative probability of hostilities in each ocean, or both oceans at once, should be considered. Serious attention should also be given to the possible assistance to be derived from commercial facilities in the vicinity of navy yards, and the possibility of obtaining sufficient skilled workmen to permit a great increase in work performed without increasing the yard plant.

Fourth—That with a mobile fleet and immobile docking and repair facilities, and the possibility of transfer of the fleet from one coast to the other, these facilities must be made reasonably adequate on each coast and cannot be treated as supplemental to each other. Any marked deficiency on either coast will result in appreciable loss of efficiency when the fleet is operating for prolonged periods in waters with inadequate navy yard facilities.

(Rep. II, p. 16, ¶ 23.)

Conclusions Regarding Pacific Coast Navy Yards

¶2

The commission has reached the following conclusions:

(a) That for strategic reasons it is necessary and desirable that there should be at least two navy yards of the first class on the Pacific coast of the United States.

(b) That the strategic location, physical characteristics, industrial advantages and defensibility of the navy yard at Puget Sound are of such character as to make its development as one of these yards not only necessary and desirable but imperative in view of the requirements of that region for national defense.

(c) That the expansion of the present navy yard at Mare Island, to meet the requirements of one of two main navy yards on the Pacific

coast, is impracticable due to physical limitations; but that its development within certain restrictions is desirable, practicable and recommended.

(d) That in view of the limitations of the navy yard at Mare Island, an additional navy yard, capable of accommodating the largest vessels of the fleet, is "necessary, desirable and advisable."

(e) That strategic advantages, physical characteristics, industrial development, and defensibility of the San Francisco Bay region, make that location the most desirable for the establishment of the other navy yard of the first-class on the Pacific coast contemplated in conclusion (a).

(f) That the capacity of the Pacific coast yards for the maintenance and repair of the fleet should be at least treble that now provided:

(g) That the development of navy yard facilities to meet the above requirements should be undertaken without delay, and that the expansion of the facilities of Pacific coast navy yards should, hereafter, keep pace with the development of the fleet.

(Rep. II, p. 25, ¶ 55.)

Compiler's Note

¶3

All estimates of the number of vessels and comparisons of navy yard facilities with the expected increase of the navy, as stated in the Helm reports, were calculated on a normal, pre-war or peace basis.

War conditions, however, have made a tremendous change in these estimates. As announced from Washington April 7, 1918, the additions from April 1, 1917, were:

U. S. NAVY:

| | | |
|---|-------------|------|
| (a) Contracts let | 740 vessels | |
| (b) Purchased or chartered (privately owned) | 700 vessels | |
| | — | 1440 |

EMERGENCY FLEET CORPORATION:

| | | |
|--------------------------------|-------------|------|
| (a) Seized German and Austrian | 112 vessels | |
| (b) Commandeered (Steel) | 425 vessels | |
| (c) Contracts let (Steel) | 720 vessels | |
| (d) Contracts let (Wooden) | 490 vessels | |
| | — | 1747 |

These vessels will create unparalleled demands on navy yard facilities and will proportionately increase the percentage indicated by the Helm reports for navy yard expansion.

Navy Increased 165 Per Cent in Ten Years

¶ 4

The growth of the Navy in recent years has been great. Figures compiled from official reports indicate that the displacement of vessels ready for service, under construction, and authorized in 1906, was 944,232 tons, while the displacement of vessels in service, under construction, and authorized on November 1, 1916, was more than 2,500,000 tons. In other words, the authorized increase in the size of the fleet, as measured by displacement, in the past 10 years has been more than 165 per cent.

(Rep. I, p. 12, ¶ 18.)

Classification of Fleet

¶ 5

To give concrete expression to the size of the Navy in 1921, upon the completion of the present ship-building program, attention is invited to the following list of vessels enumerated on page 5 of the Annual Report of the Secretary of the Navy for 1916 that will be completed and in commission in 1921; the numbers in each case are based on the General Board's estimates of survival for the present vessels of the Navy.

| | |
|--------------------------------------|-----|
| Battleships, first line | 27 |
| Battle cruisers | 6 |
| Battleships, second line | 25 |
| Armored cruisers | 9 |
| Scout cruisers | 13 |
| Cruisers, first class | 5 |
| Cruisers, second class | 3 |
| Cruisers, third class | 10 |
| Destroyers | 108 |
| Fleet submarines | 12 |
| Coast submarines | 130 |
| Monitors | 6 |
| Gunboats | 18 |
| Supply ships | 4 |
| Fuel ships | 15 |
| Transports | 5 |
| Tenders to torpedo vessels | 6 |
| Special types | 8 |
| Ammunition ships | 2 |
| Total | 412 |

The above list does not include tugs, converted yachts, and vessels unserviceable for military purposes but useful for other naval activities, whose total number will be in excess of 100; nor does it include approxi-

mately 450 lighters, barges, ferryboats, and other yard craft and floating equipment, some of which are self-propelled and all of which are necessary for the use of the fleet and require, for their maintenance, considerable attention in the way of docking and repair. Moreover, in time of war there would be based upon navy yards and naval stations, for alteration and repair, a large number of merchant vessels, thus adding to the work devolving upon such establishments. Present indications are that this last item alone would add numerous large vessels to the number necessary to be cared for at navy yards in time of war, even though every effort should be made, as should undoubtedly be made, to utilize commercial establishments to the greatest extent practicable in the outfit, alteration, and refit of such vessels.

(Rep. I, p. 15, ¶ 26.)

Greater Demands on Yards

¶6

Conservatively expressed, then, the possible increased work required in maintaining the fleet in 1921 will be from 50 per cent to 100 per cent greater than that demanded at the present time—dependent, of course, upon the relative weight assigned to the various elements involved.

(Rep. II, p. 13, ¶ 13.)

Grave Disaster Possible on Pacific Coast

¶7

The Pacific fleet represents not more than 20 per cent of the total effective strength of the fleet at the present time. If we assume that 80 per cent of the fleet were operating on the Pacific coast, instead of the present 20 per cent, and their maintenance and repair depended upon the Pacific coast yards, it requires no imagination to predict the result. The present resources of these yards have, in the judgment of commandants and other officers familiar with conditions, only a small margin over present requirements under normal conditions of work. To make the demands upon them four times as great as at present would result in serious inefficiency, and, in time of war, possible grave disaster.

(Rep. II, p. 13, ¶ 14.)

Facilities of Pacific Coast Yards Must Be Trebled

¶8

Making every allowance for overtime work in navy yards, and the use of all commercial resources available, it is the opinion of the commission that the present facilities of the Pacific coast yards must be increased to at least treble their present capacity in order to meet, in a reasonably efficient way, the unusual, though quite possible, demands of the fleet when concentrated in the Pacific; and that such increase should be so arranged as to permit future expansions.

(Rep. II, p. 15, ¶ 17.)

Southern Californian Coast Undefended

¶9

The strategic position of the coast of southern California and the degree of defensibility of its harbors was commented upon in Report No. 2. It may be noted here that this important section of the coast, from Point Arguello to the Mexican boundary, over 200 nautical miles in extent, includes San Diego, Los Angeles, and Santa Barbara, and has long stretches of undefended coast where the landing of troops is practicable a greater part of the time. Submarines, assisted by aircraft, are indispensable to the defense of this stretch of coast.

(Rep. III, p. 10, ¶ 2.)

Enemy Would Attempt to Seize Alaska

¶10

The commandant (Puget Sound Navy Yard), Rear Admiral R. E. Coontz, is of the opinion that the development of Alaska is only in its infancy. Its area is one-sixth that of the entire United States, and its coast line vast and indented.

In the event of war he does not doubt but that an enemy on the Pacific would immediately attempt to seize Alaska, and that the attempt would be made between the limits of Kodiak on the west and Ketchikan on the southeast, with Cordova, Sitka, Juneau, Skagway, and Ketchikan as points of entrance; Cordova, in order to control the Alaska & Copper River Railway; Skagway, to control the White Pass & Yukon Railway; Juneau to control the vast mineral resources of which it is the center; Ketchikan, for the same reason; and Sitka, as a coaling and radio base. The entrances to be looked out for in Southeastern Alaska are: Cross Sound, Salisbury Sound, Chatham Strait, and Dixon Entrance.

(Rep. II, p. 204, ¶ 34.)

Baranof Island Natural Center for Defense

¶11

A glance at a globe shows that Baranof Island is the natural center for defense and in addition will be a base for a flank attack on vessels of a fleet attacking Puget Sound.

While there are scores of bays and inlets in southeastern Alaska with which I am familiar, and which I am satisfied could be utilized as bases not only for submarines but by deep draft vessels of the battleship class, I am of the opinion that a submarine base should be established in the neighborhood of Sitka, where we now have a radio station and coal pile, and that an aviation base should be established on Redoubt Lake, which is 12 miles south of Sitka, fresh water, and easy of access.

(Statement of Rear Admiral R. E. Coontz, Rep. II, p. 204, ¶ 35.)

Mare Island Navy Yard

Physical Limitations Affect Development

¶ 12

Even though channels of greater depth than 30 feet could be maintained there are physical limitations at Mare Island which seriously affect its development as a navy yard of the first order. Among these may be mentioned: Narrowness and limited area of waters adjacent to the navy yard; the swift currents in Mare Island Strait; wholly inadequate berthing space and no possibility of obtaining such berthing space, within reasonable range of repair shops, in amounts sufficient for the accommodation of the large number of vessels of the fleet necessarily based thereon if there were no other navy yard in the vicinity; difficulties of navigation to and from the yard during foggy weather, especially for large vessels; the effect of silt in the water in clogging condensers and flushing systems of larger vessels where the injections are low down; insufficiency or undesirability of anchorage ground, even beyond Mare Island Strait.

(Rep. II, p. 39, ¶ 96.)

Not Suitable for Naval Main Base

¶ 13

In view, therefore, of all the conditions above noted the commission is of the opinion that economical and physical limitations prevent the development of Mare Island to an extent beyond that necessary for building operations and the maintenance and repair of vessels of the fleet, which can be based and maintained thereat under conditions of a 30-foot channel approach and of the practicable development of berthing space. Under these circumstances Mare Island cannot be considered for development as a naval base suitable for the largest vessels of the Navy.

(Rep. II, p. 40, ¶ 97.)

Recommendations for Development

¶ 14

The commission submits the following conclusions and recommendations concerning that navy yard:

(a) It is impracticable and inadvisable to develop Mare Island as a navy yard suitable for the largest vessels, with 40-foot depths at mean low water in its approach channels.

(b) It is impracticable and inadvisable to attempt to develop Mare Island as a navy yard of intermediate capacity with 35-foot depths at mean low water in channel approaches.

(c) Mare Island has many advantages due to defensible location, climate, labor supply, existing dry docks and shops, plant equipment, and various navy-yard accessories of great value and possible service, to the fleet; and for these reasons its retention and use for shipbuilding and the

repair and maintenance of the fleet within the limitations imposed by 30-foot channel approaches is desirable, advisable, and recommended.

(d) The approach channels to Mare Island should be dredged and maintained at a depth of 30 feet, mean low water, as recommended by the Biddle Board in its report on the "Hydraulics of Mare Island Strait," dated June 8, 1908. The recommendations of this board were approved by the Navy Department and appropriations have heretofore been authorized by Congress for the performance of the work contemplated, and the commission recommends the continuance of regular annual appropriations for the maintenance of these 30-foot channels.

(e) Additional berthing facilities are imperative as a measure of economy in increasing the efficiency of the yard as a building, repair, and supply station, and such additional berthing space, in general conformity with plans hereinafter referred to under the heading "Estimates," are recommended.

(f) Shop and storehouse facilities and other yard accessories and equipment should be improved and increased as may be necessary to meet the requirements of the fleet and to increase the efficiency of the yard in shipbuilding and repair work now and hereafter assigned to it, and the commission so recommends and will include under the heading "Estimates" a general indication of the items of improvement now considered most urgent.

(Rep. II, p. 41, ¶ 101.)

Home Base for Submarines and Aviation

¶ 15

(g) It is desirable and advisable, and the commission recommends, that there be established at Mare Island a repair and home base for submarines and an aviation operating and repair base. Suitable location for such purposes and the necessary land areas are available or readily reclaimable, and other physical conditions are satisfactory for the establishment of such bases.

(Rep. II, p. 41, ¶ 101.)

Complementary to Additional Yard

¶ 16

(h) The establishment of an additional navy yard on San Francisco Bay should be undertaken, with full recognition of the desirability of avoiding, at Mare Island and San Francisco, an unnecessary duplication of navy-yard plant and accessories. The military administration and industrial personnel of the two navy yards should be so assigned as to make the two establishments complementary to each other and in no sense independent or competitive.

In determining the extent of the development of the navy yard in San Francisco Bay full consideration should also be given not only to the work which can be efficiently and economically performed at Mare Island,

but the possible use, to their fullest extent in time of war or other serious emergency, of all the shipbuilding, repair, berthing, docking, and supply facilities of the region, whether under state, municipal, or private ownership.

And, finally, that, so far as may be practicable, definite arrangements to this end should be made in time of peace with a view of rapid, efficient, and economical service to the Nation in time of war.

The above procedure is strongly recommended and, so far as practicable, will be observed by the commission in submitting its final recommendations for the development of the navy yard on San Francisco Bay.

(Rep. II, p. 41, ¶ 101.)

For Development \$2,250,000 Recommended

¶ 17

The lump-sum estimates submitted by the commission are recommended to be handled in the manner previously indicated and to be subject to allotment by the Secretary of the Navy and the approval by him of the necessary plans.

(1) For the further development of the navy yard, Mare Island, toward providing additional facilities to meet the requirements of the fleet on the basis of 30-foot channel approaches: To cover cost of additional piers and causeway, dredging outfits, basing facilities for submarines, additional storage facilities, extension of electrical and boiler shop, reclamation of land for aviation field \$2,250,000.

(Rep. II, p. 81, ¶ 204[1].)

Recommends \$490,000 for Submarine Base

¶ 18

The commission's Report No. 2 recommended Mare Island Navy Yard as the location of a home base for submarines and for an aviation station. General plans and estimates for the development of this station have since been made and it is now recommended that there be appropriated for the development of such a submarine base, the sum of \$490,000, which is the total estimated cost of the facilities now considered necessary.

(Rep. IV, p. 22, ¶ 33.)

To Develop Aviation Base Recommends \$540,000

¶ 19

Similarly, it is now recommended that there be appropriated for the development of an aviation base at the Mare Island Navy Yard, the sum of \$540,000, which is the total estimated cost of the facilities at present thought necessary—not including the cost of reclamation of land which it is assumed would be performed by disposing of material dredged from Mare Island Straits.

(Rep. IV, p. 22, ¶ 33.)

Additional Navy Yard on the Pacific Coast Alameda, California

Emphatic Necessity for New Yard

¶ 20

(1) The commission is most emphatically of the opinion that it is "necessary, desirable, and advisable to establish an additional navy yard or naval station on the Pacific Coast of the United States," and that prompt measures should be taken to acquire without delay a suitable site upon which to establish such navy yard or station.

(Rep. II, p. 81, ¶ 204.)

(4) For strategic reasons it is necessary and desirable that there should be at least two navy yards of the first class on the Pacific Coast of the United States.

(6) The strategic location, physical characteristics, industrial advantages, and defensibility of the navy yard at Puget Sound are of such character as to make its development as one of these yards not only necessary and desirable, but imperative, in view of the requirements of that region for national defense. (See conclusion 4.)

(7) The strategic advantages, physical characteristics, industrial development, and defensibility of the San Francisco Bay region make that location the most desirable for the establishment of one of the navy yards of the first class on the Pacific Coast contemplated in conclusion (4).

(Rep. II, p. 82, ¶ 204.)

(17) In view of the limitations of the navy yard at Mare Island, an additional navy yard on San Francisco Bay, capable of accommodating the largest vessels of the fleet, is "necessary, desirable, and advisable."

(18) There are several sites on San Francisco Bay that can be developed in a suitable and economical manner into a modern docking and repair plant, capable of taking care of as many of the largest vessels of the present and prospective fleet as necessary.

(Rep. II, p. 83, ¶ 204.)

Site at Alameda Compared with Hunters Point

¶ 21

The choice of the most suitable location, therefore, narrows down to site No. 1, Hunters Point, and site No. 7, Alameda. The commission believes that either of these sites could be developed into satisfactory and useful navy yards. Site No. 7 has the important advantage over Site No. 1 in that no purchase of land is involved. At the same time the cost of purchasing the land in connection with Hunters Point site should not be more than about 3 per cent of the entire cost of development. Site No. 1 has the advantage over site No. 7 in that dry docks can be built in rock. On the other hand, site No. 7 has the important advantage over

site No. 1 as regards better foundation for all other structures. Both sites 1 and 7 are capable of indefinite expansion by reclaiming submerged land lying to the south of the locations under discussion. At Hunters Point some of the submerged land lying near the shore south of site No. 1 is held in private ownership. At Alameda the submerged land south of site No. 7 is held in public ownership. Site No. 7 has the advantage of being able to secure direct railroad connections more easily, being more convenient to the main railroad terminals on the east side of the bay, and in being able to obtain an unlimited supply of fuel oil by direct pipe-line connection. Employees would be able to take advantage of the reasonable rents in the Alameda district. Site No. 7, in common with the east bay shore, claims a slightly milder and more pleasant climate over some portions of the west bay shore. Alameda, site No. 7, is within range of indirect fire, as also is Hunters Point, site No. 1; but the former has the advantage in being about ten miles from the open sea, whereas the latter is only about seven miles therefrom.

(Rep. V, p. 29, ¶ 38.)

The commission finds the most desirable and suitable sites to be site No. 1, Hunters Point, and site No. 7, Alameda; that the advantages of these two sites are quite evenly balanced; that a navy yard located on either of these two sites would be satisfactory.

(Rep. V, p. 30, ¶ 39.)

Designate Alameda as Most Suitable Site

¶ 22

For the reasons stated hereinabove, however, the commission finds that site No. 7 offers the greater advantages, and therefore designates Alameda, site No. 7, as the most suitable site for the "additional navy yard on the Pacific Coast," and recommends that same be acquired and developed as such in general accordance with plan R-24, Appendix E, part 9, and the cost estimate given in Appendix E, Part 8. The commission further recommends as its second and alternate choice site No. 1, Hunters Point.

(Rep. V, p. 30, ¶ 40.)

Estimated Cost of Alameda Yard

¶ 23

The estimated cost of development, to the extent of 473 acres, on the same basis as the other sites, is as follows:

| | | |
|---------|--|--------------|
| Item 1. | Improvements, including dredging, breakwaters, quay wall, piers, and grading | \$ 9,235,000 |
| Item 2. | Two 1,000-foot dry docks, at \$3,500,000 each | 7,000,000 |
| Item 3. | Buildings | 11,664,000 |
| Item 4. | Machinery and equipment | 7,500,000 |
| Item 5. | Street improvements, distributing systems, etc. | 908,000 |

| | |
|-----------------|--------------|
| Total | \$36,307,000 |
|-----------------|--------------|

(Rep. V, p. 26, ¶ 23.)

Alameda to Be Main Fleet Base

¶ 24

The foregoing recommendation is based on the assumption that the activities for naval purposes of this navy yard will include the docking and repair of larger vessels of the Navy; the use of the navy yard as a main fleet base; and for such other uses, in time of peace and war, as the growth of the Navy renders desirable. The retention and continued development and use of the Mare Island Navy Yard as recommended in Report No. 2 is reiterated by the commission.

(Rep. V, p. 30, ¶ 41.)

Recommends \$6,000,000 Yearly—Total Cost to Be \$36,307,000

¶ 25

In order to make the foregoing effective the commission recommends that such suitable legislation be enacted as will permit the immediate acquirement and development of the Alameda site at a cost not to exceed \$36,307,000, not including anything for the purchase of land; and that, based on a construction schedule of six years, an estimate for an appropriation of \$6,000,000 be submitted for the consideration and action of Congress at its next session. The following is suggested as a suitable form for such legislation:

“That the Secretary of the Navy is hereby authorized to accept without cost all or any portion of a tract of submerged land comprising 3,000 acres, more or less, in San Francisco Bay within the limits of the city of Alameda, in accordance with the provisions of assembly bill No. 206, introduced in the State Legislature of California January 6, 1917, and amended in the Senate March 28, 1917, and in accordance with the offer of the mayor of Alameda in his letter of July 16, 1917, so far as they may be applicable, for the purpose of establishing thereon the “necessary additional navy yard on the Pacific Coast of the United States;” that the development of this site for this purpose is authorized with a limit of cost of \$36,307,000, toward which the sum of \$6,000,000 is hereby appropriated.”

(Rep. V, p. 31, ¶ 43.)

Puget Sound Navy Yard

Admirably Adapted as a Base of Operations

¶ 26

After a thorough examination of the Puget Sound Navy Yard and careful consideration of all the conditions involved in the establishment and development of an additional navy yard on the Pacific Coast in their relation to existing navy yards, the commission has reached the following conclusions with respect to Puget Sound and recommends departmental and congressional action in accordance therewith:

(a) The Puget Sound Navy Yard is well located strategically and admirably adapted, through physical characteristics, and defensibility, as a base of operations for the fleet and for local naval defense of the Puget Sound and northwestern coast region of the United States. It will also be the most advanced continental base for naval operations affecting the defense of Alaska.

(b) That, as a part of its duty in selecting a site, determining the character of its development and cost of establishing and maintaining an additional navy yard on the Pacific Coast, including all strategical, military, and industrial considerations, it has been necessary for the commission to determine, in general terms, the degree of future development of the existing navy yards at Mare Island and Puget Sound.

(c) That, in the practical application of the conclusions just expressed, the Puget Sound Navy Yard should be developed to the extent necessary to meet the requirements indicated in conclusion (a), above.

(Rep. II, p. 75, ¶ 191.)

Should Be Developed Systematically as a Main Fleet Base

¶ 27

(d) That it is very desirable to begin, at once, at this yard, improvements based upon a systematic scheme of development which will increase its docking, berthing, repair, storehouse, and other facilities to an extent commensurate with the demands which will be made upon it when the main fleet is operating in the Pacific.

(e) That it should also be developed to a reasonable extent as a ship-building yard, having always in view, however, that the first and predominant purpose of a navy yard is the repair, maintenance, and supply of the fleet and that any yard activity should be definitely subordinated to such purposes, not only in the original plans, but in subsequent development of the yard.

(Rep. II, p. 75, ¶ 191.)

Home and Repair Base for Submarines and Aviation

¶ 28

(f) That it should also be utilized as a home and repair base for submarines and as an aviation operating and repair base and that definite sections of the yard should be set aside and developed for those purposes as soon as practicable.

(Rep. II, p. 75, ¶ 191.)

Developments Should Be Undertaken at Earliest Possible Date

¶ 29

(g) That the grading, filling, and sea-wall construction, incident to the necessary development of the yard and the construction of, at least, one additional dry dock with capacity sufficient to accommodate vessels passing through the Panama Canal locks should be undertaken at the earliest possible date.

(h) That the above work should be accompanied by suitable development of berthing, shop, storehouse, and other facilities, with the view of obtaining a well-balanced increase in the general efficiency of the yard.

(i) That, while necessarily unable through lack of time to make detailed recommendations, the commission is strongly of the opinion that the general scheme of development indicated on Puget Sound Navy Yard plan 2c/274 of January, 1917, and commandant's letter of explanation of January 19, 1917, transmitting same (Appendix S, pt. 2), which was prepared after consultation with and suggestions along certain lines by the commission, will provide an effective and economical present development of that yard while providing for suitable future expansion within the physical limitations of the yard area.

(j) That, in the future development of Puget Sound and in the consideration of the additional work imposed upon it in time of war, special attention should be given to the extent and possible use of shipbuilding, repair, supply, and other resources at nearby cities in the Puget Sound region within the outer line of defense.

(Rep. II, p. 75, ¶ 191.)

Relations to New Yard and to Mare Island Yard

¶ 30

The additional navy yard which this commission finds will be necessary will provide for only a part of the increase recommended for the naval shore establishment on this coast. The remainder will be distributed between the navy yards at Mare Island and Puget Sound in a manner which can only be determined after thorough detailed examination of the possibilities of each of these navy yards.

(Rep. II, p. 77, ¶ 193.)

First Year's Appropriation Recommended for Development, \$2,500,000

¶ 31

(2) Toward the further development of the navy yard, Puget Sound, and to provide additional facilities for the maintenance of the fleet, including basing facilities for submarines and aircraft; To include an additional dry dock of dimensions permitting the docking of any vessel which can pass through Panama Canal (limit of cost \$3,000,000); steel floating dry dock capable of lifting 5,000 tons (limit of cost, \$500,000); grading and filling in connection with reclamation of land; quay-wall extension in connection with reclamation of land; fitting-out pier; submarine and aviation bases; first year's appropriation for the above objects . . . \$2,500,000

(Rep. II, p. 81, ¶ 204[2].)

\$1,425,000 Recommended for Submarine Base

¶ 32

The commission's Report No. 2 recommended Puget Sound Navy Yard as the location of a home base for submarines and for an aviation station. General plans and estimates for the development of this station have since been made and it is now recommended that there be appropriated for the development of such a submarine base, the sum of \$1,425,000, which is the total estimated cost of the facilities now considered necessary.

(Rep. IV, p. 22, ¶ 33.)

Recommends \$375,000 for Aviation Base

¶ 33

Similarly, it is now recommended that there be appropriated for the development of an aviation base at the Puget Sound Navy Yard, the sum of \$375,000, which is the total estimated cost of the facilities at present thought necessary.

(Rep. IV, p. 22, ¶ 33.)

Naval Aviation Base for Training and Experimental Work

San Diego Best Location for Aviation Training Base

¶ 34

The commission's efforts have, therefore, been especially aimed, on the Pacific Coast, to discover the best location for an aviation base for training and experimental work. In view of the requirements for such a station and the conditions found, it has had no difficulty in reaching a decision as to the locality in which such a base should be established. For not only are the service views, both Army and Navy, practically unanimous in regard to the superior advantages of San Diego Bay for this purpose, in which opinion the commission concurs, but a recent investigation of this subject by a commission of Army officers appointed in accordance with the act of Congress approved March 4, 1915, to report upon the advisability of acquiring land near San Diego Bay or elsewhere on the Pacific, Gulf, and Atlantic coasts for an Army aviation school and training ground has been of material assistance. The Army commission, of which Col. Samuel Reber, United States Army, was senior member, included in its report, dated December 29, 1915, a description of the San Diego Bay region and its climatology, and stated that "the terrain in the vicinity of San Diego Bay fulfills aviation requirements better than any other section of the United States," and that, so far as weather and air conditions are concerned, it is the best region for such an establishment. The report of this commission is contained in House Document No. 687, Sixty-fourth Congress, first session.

(Rep. III, p. 14, ¶ 9.)

Advantages of San Diego

¶ 35

San Diego's advantages lie especially in the direction of low average velocity of wind, air free from eddies and irregular currents, the large percentage of clear days, the large amount of sunshine, and an equable temperature. From the inspection it has made, and from the information it has received, including the reports of the commission's aviation expert, Capt. A. A. Cunningham, United States Marine Corps (Appendix B), this commission similarly reports that the unusually favorable conditions at San Diego make it desirable and advisable that the main naval aviation base for training and experimental work on the Pacific Coast be established on San Diego Bay, and so recommends. Aside from the great distance separating the Atlantic and Gulf Coasts from the Pacific Coast, the fact that one training and experimental base is not sufficient by itself to meet the growing requirements of the Navy makes it necessary that a training base, in addition to the training station at Pensacola, on the Gulf,

should be established now, and, as stated above, this additional base should be at San Diego. The functions of such a base would, in time of war, naturally include those of an aviation operating base.

(Rep. III, p. 14, ¶ 10.)

North Island Most Available Site

¶ 36

This leaves available for consideration only site No. 1, North Island, which contains about 1,200 acres of level ground, all well above high water, and fronts both the bay and ocean. Adjoining this property on the east is a tract of several hundred acres of shallow submerged land known as Spanish Bight, which could be reclaimed if necessary to form an enlargement of North Island. The commission of Army officers hereinbefore referred to, reported that "North Island is the best possible site for the location of an aviation school." The Army aviation school occupied a portion of this land, by permission of the owner, the Coronado Beach Co., without expense to the Government, since the middle of 1913.

(Rep. III, p. 15, ¶ 12.)

Title to Land in Doubt

¶ 37

The commission of Army officers reported also that the owner of site No. 1 stated that it was not on the market, and that he would not name any price for it; that commission also reported that a question had arisen as to the United States having some title, or color of title, to this land. It recommended that, if the United States was found to have title to this tract, that the Army aviation school be located thereon; and that if it did not have title, it be not purchased on account of excessive cost, and that site No. 2 be purchased instead. The right of the United States, for purposes of national defense, under the old Mexican laws of 1824, to certain lands on the shores of San Diego Bay, including North Island, has been investigated by Maj. Dennis Quinlan, Judge Advocate, United States Army, and his conclusions were given as one of the appendixes of the Reber Commission report in the public document above referred to. A copy of same is attached as Appendix B 5. The question of whether the United States has any title to North Island has been referred by the Department of Justice to the United States attorney at Los Angeles.

(Rep. III, p. 15, ¶ 14.)

Owner of Site Wants \$4,500,000

¶ 38

As noted in its previous report, the commission was unable to obtain satisfactory information concerning value of the property recommended. There is attached hereto, however (Appendix Q), copy of a letter dated February 6, 1917, from the owner of this property, this letter having been received since submitting Report No. 3, and naming \$4,500,000 as the pur-

chase price. The commission adheres to its former recommendation that the Secretary of the Navy be authorized to obtain this site by condemnation or by such other proceedings as may appear advisable after determination of the Government's interests in the property under consideration.

(Rep. IV, p. 21, ¶ 33.)

Only Suitable Site for Naval Aviation

¶ 39

This commission is confronted with the same situation that confronted the Army commission as regards dearth of sites, except that for the Navy there is no alternate site available if North Island be not adopted. In view of its special suitability, there seems to be no question but that North Island should be obtained as the site of a Government aviation school and that appropriate measures to that end should be taken, and this commission so recommends. The land is assessed by the county at \$400 per acre.

(Rep. III, p. 16, ¶ 15.)

Site Could Be Shared by Army and Navy

¶ 40

From statements made by the officer now in command of the Army aviation school at North Island it is believed that the unusual advantages of this site could be shared by the Army and the Navy, and that it would thus serve the present essential needs of both the Army and the Navy as an aviation training station for land and water machines. The commission is, therefore, of the opinion that a policy of joint acquisition and occupation of this site would meet immediate requirements and permit greater experience and a more extensive aeronautical survey of the Pacific Coast to determine whether or not there was necessity for another training base and, if so, the best locality. It is appreciated, of course, that the question of the use of North Island, if acquired, whether by the Army alone, by Navy alone, or jointly, is a matter for the determination of the heads of the respective executive departments, but the commission ventured to suggest in its Report No. 1 and its letter to the Navy Department of December 16, 1916, joint action in such matters, so far as practicable, and is under the impression that such procedure has already been followed in the reported acquisition and intended use of the large aviation field recently acquired near Hampton, Va.

(Rep. III, p. 16, ¶ 16.)

Specific Recommendations

¶ 41

In view of all the foregoing, the commission is of the opinion that—

(a) It is necessary, desirable, and advisable to establish a naval aviation base for training and experimental work on the Pacific Coast.

(b) That the best location for this aviation base is in Southern California on San Diego Bay.

(c) That the best site for the location of such a training and experimental aviation base is North Island.

(d) That this training and experimental base should also be used as an operating base in time of war.

(e) That the enactment of legislation to the following effect is desirable and recommended:

(Rep. III, p. 17, ¶ 19.)

Appropriation \$500,000 Recommended

¶ 42

"That the Secretary of the Navy is hereby authorized to acquire by purchase, through condemnation or otherwise, for aviation purposes, all or any portion of the land on San Diego Bay, California, known as North Island, that may be necessary for this purpose, and any funds that have been or may be appropriated for naval aviation purposes may be considered available to carry this into effect; and that the further sum of \$500,000 is hereby appropriated toward its acquisition and development."

(Rep. III, p. 17, ¶ 19.)

Lake Washington Best Location in Pacific Northwest if Additional Training Base Needed

¶ 43

The immediate requirements for submarine and aviation training bases on the Pacific Coast will be met by the establishment of an aviation training base on San Diego Bay and a submarine training base on Los Angeles Harbor. If additional training bases are needed, particularly in the Pacific Northwest, the Port Angeles operating base is available and suitable for submarine training, while Lake Washington, with the aerodynamical laboratory of Washington State University close by, appears to be the best location in that region for an aviation training base.

(Rep. IV, App. A, pt. 1, p. 36, ¶ 17.)

Submarine Training Base

Los Angeles Best Location

¶44

The commission, after careful consideration, has reached the following conclusions and submits recommendations based thereon:

(a) That it is necessary, desirable, and advisable to establish a submarine training base on the Pacific Coast of the United States.

(b) That the best location for this training base is at Los Angeles Harbor in Southern California.

(c) That the best site for this base is that designated as site No. 1, herein described, which consists of 166 acres, more or less, and is situated inside of and at the inner end of the breakwater and cession whereof has been offered, without cost, by the municipality of Los Angeles. It is recommended that this offer be accepted.

(d) That the above base should also be used as an operating base in time of war and that in its present development provision should be made for a permanent training base for at least eighteen submarines, and it is so recommended.

(Rep. III, p. 25, ¶ 40.)

Locates Operating Base at San Diego

¶45

(e) That there should also be located at San Diego an operating base for use of submarines in time of war.

(f) That the operating base at San Diego should be located at the existing naval reservation, between the north end and the quarantine station, and it is recommended that this section of the reservation and as much more as may hereafter prove necessary be reserved for this purpose.

(Rep. III, p. 25, ¶ 40.)

Recommends Site at Los Angeles

¶46

(g) That, in view of the necessity for more adequate protection for the Southern California coast, the establishment of a suitable submarine training base, and the acquisition of a site for such base and the performance, with the least cost, of preliminary work in connection with the development of such site, it is most desirable to enact at once the legislation necessary to that end. It is therefore recommended that there be inserted in the naval appropriation bill now under consideration in Congress the following proviso:

"That the Secretary of the Navy is hereby authorized to accept a tract of land comprising 166 acres, more or less, of submerged land in Los Angeles Harbor, known as site No. 1, which has been offered to the United States free of cost by the city of Los Angeles, for the purpose of

establishing thereon a submarine base and for such other uses by the Navy Department as may hereafter seem desirable for the purpose of national defense, and the sum of \$300,000 is hereby appropriated toward the development of same, and made immediately available."

(Rep. III, p. 25, ¶ 40.)

Appropriation \$2,000,000 Recommended for Development

¶ 47

In lieu of the \$300,000 appropriation for the initial development of the submarine base site at Los Angeles, inasmuch as general plans and estimates for the development of this station have since been worked out, it is now recommended that there be appropriated for the sum of \$2,000,000, which will be sufficient for all grading, filling, dredging, piers, storehouses, shops, electric charging station, barracks for men, and other necessary appurtenances for making the submarine base ready for use.

NOTE: Since submitting Report No. 3, the commission has received from the harbor engineer of Los Angeles written statement to the effect that a conservative valuation, based upon leases actually made by the city, of the Los Angeles Harbor site selected by the commission, this being the site which the city offers to donate free of cost for naval purposes, is \$4,000,000, when reclaimed. Also, that a saving of from \$400,000 to \$500,000 would be effected by the Government in the actual preparation of the site if acceptance be made immediately and the spoil from contemplated excavating operations is utilized in filling the site.

(Rep. IV, p. 21, ¶ 33.)

Southern California Open to Enemy Invasion and Occupation

¶ 48

It (Southern California) is a region of varied wealth that would be of great value to the Nation in time of war and would offer much inducement to an enemy for invasion and occupation. Such a region is especially entitled to adequate protection in the way of local coast defense. A submarine training base, if located at Los Angeles, would also, as an operating base, supplement the fixed defenses in protecting Los Angeles Harbor and vicinity. This affords the maximum protection in the most economical manner.

(Rep. III, p. 22, ¶ 26.)

Port Angeles Suitable if Additional Training Base Needed

¶ 49

The immediate requirements for submarine and aviation training bases on the Pacific Coast will be met by the establishment of an aviation training base on San Diego Bay and a submarine training base on Los Angeles Harbor. If additional training bases are needed, particularly in the Pacific Northwest, the Port Angeles operating base is available and suitable for submarine training, while Lake Washington, with the aerodynamical laboratory of Washington State University close by, appears to be the best location in that region for an aviation training base.

(Rep. IV, p. 36, App. A, pt. 1, ¶ 17.)

Submarine and Aviation Operating Bases

Recommends Appropriation \$300,000 for Port Angeles Base

¶ 50

The commission was particularly impressed with the possibility of establishing, at comparatively small expense, in the vicinity of Port Angeles, an excellent advanced operating base for submarine and aircraft, whose main or home base would be at Puget Sound Navy Yard. The location of that operating base would be at Ediz Hook, on ground already belonging to the United States.

(Rep. IV, p. 12, ¶ 12.)

The location of Ediz Hook is such as to make it particularly desirable as an operating base for submarines patrolling the Strait of San Juan de Fuca. It is also an excellent headquarters for such vessels when covering the San Juan and other United States islands and the main coast line of the United States from the Puget Sound region to our northern border.

(Rep. IV, p. 13, ¶ 14.)

For the development of a submarine and aviation operation base on Ediz Hook, opposite Port Angeles, Wash., and on ground already owned by the Government, this development, including the necessary wharves, shops, storehouses, hangars, temporary quarters, and other absolutely essential equipment for an outlying operating base, including electric charging service for submarines and minor shop facilities, the sum of \$300,000.

(Rep. IV, p. 22, ¶ 33.)

Impressed with Importance of Defending Columbia River Region

¶ 51

At the time of its first visit to Portland and the Columbia River the commission was impressed with the importance of adequately defending this region from hostile attack, and establishing, if practicable, near the mouth of the Columbia River, a submarine and aviation base from which operations could be satisfactorily conducted in time of war. The general character of the mouth of the Columbia River is fully illustrated by Coast and Geodetic Survey chart, hereto attached, Appendix K. The commercial and industrial importance of the whole Columbia River region, and the territory tributary thereto, are fully set forth in documents prepared by the Portland and Astoria Chambers of Commerce, and by the Board of Harbor Commissioners of Portland, hereto attached, Appendixes L, M, and N, respectively.

(Rep. IV, p. 16, ¶ 21.)

Tongue Point Site Possesses Greater Advantages

¶ 52

After consideration of all available sites in the vicinity of the mouth of the Columbia River, the Tongue Point site appears to the commission to possess greater advantages as a submarine and aviation base than any other site in that locality. In time of war, the necessity for the protection of the Columbia River region is imperative, and a well-equipped submarine base in the Columbia River from which submarines could operate for a distance of at least 150 miles to the northward and southward would meet the major requirements of defense at Willapa Bay, Grays Harbor, and the coast to the northward and southward of the entrances to the Columbia River.

(Rep. IV, p. 17, ¶ 25.)

Recommends Appropriation \$1,200,000 for Columbia River Base

¶ 53

For the acquisition of the necessary site and the immediately necessary development of same on the Columbia River, as hereinbefore recommended in this report for a submarine and aviation base, this development to include the necessary wharves, storehouses, shop facilities, electric charging plant, temporary barracks for men, etc., with provision for meeting the necessities of at least twelve submarines at one time, and possibility of expansion to double that number, and for the necessary hangars, launching ways, etc., needed for aviation purposes, there is recommended the sum of \$1,200,000. It is also recommended that the following legislation be enacted to carry into effect the above recommendation:

"That the establishment of a submarine and aviation base near the mouth of the Columbia River is hereby authorized on such site as may be recommended as most suitable by the commission appointed by the President to report thereon in accordance with the provisions of the act of Congress making appropriations for the naval service for the fiscal year ending June thirtieth, nineteen hundred and seventeen; approved August twenty-ninth, nineteen hundred and sixteen: Provided, That such site is approved by the President, and the Secretary of the Navy is hereby authorized to acquire, by purchase or gift, if not already owned by the United States, the site approved by the President; and the sum of \$1,200,000 is hereby appropriated toward the acquisition and development of such site as a submarine and aviation base."

(Rep. IV, p. 22, ¶ 33.)

Recommends Appropriation \$250,000 for Los Angeles Aviation Operating Base

¶ 54

For the establishment of an aviation operating base at Los Angeles, on ground whose development is provided for in the immediately foregoing suggested legislation (Note—Referring to submarine training base), it is recommended that there be appropriated the sum of \$250,000.

(Rep. IV, p. 21, ¶ 33.)

**Recommends Appropriation \$375,000 Submarine Operating Base
at San Diego**

¶ 55

For the development of an operating submarine base at San Diego, to be located upon the existing naval reservation, as recommended in Report No. 3, and capable of accommodating at one time at least six submarines, the sum of \$375,000.

(Rep. IV, p. 21, ¶ 33.)

Alaska Should Be Safeguarded Against Invasion

¶ 56

The commission did not find it practicable to visit the Alaska region. It has studied the situation, however, and has had the benefit of comments and recommendations from officers acquainted with the district. It would unquestionably be a great advantage for an enemy of the United States to be able to secure a base of operations on this part of its territory, and steps should be taken which will lead to the eventual safeguarding of the region against invasion. The places that seem most suitable are Sitka, Shumagin Islands, and Dutch Harbor. Dutch Harbor is strategically the first in importance of these places, and, together with as much of the region as practicable, should be covered, in exercises each summer, by a division of submarines accompanied by a tender. It is possible that, as conditions are more thoroughly developed, a complete secondary base capable of handling all minor repairs, etc., would be found desirable at that or some other place, or even at more than one place.

(Rep. IV, p. 38, ¶ 22.)

Temporary Submarine and Aviation Bases in Time of War

Recommends That Expenses Be Met from General Appropriations

¶ 57

There is also given a list of places recommended by the commission for consideration by the Navy Department and naval district commanders as emergency operating bases in time of war. The commission makes no recommendation for appropriations in connection with the development of such possible emergency operating stations, believing it to be very desirable that all arrangements necessary in this connection should be made by the administrative offices of the Navy Department, under the direction of the Secretary of the Navy, the expense thereof to be provided for from general appropriations covering such objects.

Urgent Necessity for Making Arrangements in Advance of Need

¶ 58

The commission desires to point out, however, the urgent necessity for making all arrangements possible in advance of actual necessity therefor, by leasing or otherwise obtaining the use of the necessary space on shore, and also wharves, storehouses, stores, etc., for "emergency use" of the submarine and aviation services in time of stress, in order that all available commercial resources of the localities in question may be fully utilized when needed. In this manner the Government would be relieved of the unnecessary expense involved in the establishment of costly permanent plants with large annual charges for maintenance at shore stations, which would only be used as auxiliaries to the permanent bases in time of war.

(Rep. IV, p. 20, ¶ 32.)

Locations Recommended for Temporary Submarine Operating Bases

¶ 59

| | |
|-------------------|----------------|
| Port San Luis | Willapa Bay |
| Monterey Bay | Grays Harbor |
| San Francisco Bay | Port Townsend |
| Humboldt Bay | Bellingham Bay |

Locations Recommended for Temporary Aircraft Operating Bases

¶ 60

| | |
|-------------------|----------------|
| Morro Bay | Grays Harbor |
| Monterey Bay | Port Townsend |
| San Francisco Bay | Bellingham Bay |
| Humboldt Bay | Lake Ozette |
| Coos Bay | |

Summary of Pertinent Phrases

CLEARLY INDICATING THE HELM COMMISSION'S
KEEN REALIZATION IN 1916-17 OF THE VITAL
NECESSITY OF IMMEDIATE AND
ADEQUATE PREPAREDNESS

"Immediate provision for a marked expansion in berthing, docking, and repair facilities on the Pacific Coast." (¶ 1.)

"The present facilities of the Pacific Coast yards must be increased to at least treble their present capacity." (¶ 8.)

"Submarines, assisted by aircraft, are indispensable to the defense of this stretch of coast." (Southern California.) (¶ 9.)

"To make the demands four times as great as at present would result in serious inefficiency, and in time of war, possibly grave disaster." (¶ 7.)

"The commission is most emphatically of the opinion that it is 'necessary, desirable, and advisable to establish an additional navy yard or naval station on the Pacific Coast of the United States,' and that prompt measures should be taken to acquire without delay a suitable site upon which to establish such navy yard or station." (¶ 20.)

"Additional berthing facilities are imperative as a measure of economy in increasing the efficiency of the (*Mare Island*) yard." (¶ 14.)

"Any marked deficiency on either coast will result in appreciable loss of efficiency when the fleet is operating for prolonged periods in waters with inadequate navy yard facilities." (¶ 1.)

"Recommends that such suitable legislation be enacted as will permit the immediate acquirement and development of the Alameda site." (¶ 25.)

"To make its (*Puget Sound's*) development as one of these yards not only necessary and desirable, but imperative." (¶ 2.)

"That, in view of the necessity for more adequate protection for the Southern California coast, the establishment of a suitable submarine training base, and the acquisition of a site for such base
* * * * * it is most desirable to enact at once the legisla-
tion necessary to that end." (¶ 46.)

"For the acquisition of the necessary site and the immediately necessary development of same on the Columbia River." (¶ 53.)

"The commission desires to point out, however, the urgent necessity for making all arrangements possible in advance of actual necessity therefor, by leasing or otherwise obtaining the use of the necessary space on shore, and also wharves, storehouses, stores, etc., for 'emergency use' of the submarine and aviation services in time of stress, in order that all available commercial resources of the localities in question may be fully utilized when needed." (¶ 58.)

(References are to paragraphs of this brief)

Appropriations Recommended

(a) NAVY YARDS

(1) Additional Navy Yard on Pacific Coast, Alameda, California.

(Total Cost, \$36,307,000.)

Yearly for six years \$6,000,000

(2) Mare Island Navy Yard.

(a) Improvements \$2,250,000

(b) Submarine Main Base 490,000

(c) Aviation Main Base 540,000

(3) Puget Sound Navy Yard.

(a) Improvements (first year only) \$2,500,000

(b) Submarine Main Base 1,425,000

(c) Aviation Main Base 375,000

(b) NAVAL AVIATION TRAINING BASE,

San Diego, California

(In addition to other available funds) \$ 500,000

(c) SUBMARINE TRAINING BASE,

Los Angeles, California \$2,000,000

(d) SUBMARINE AND AVIATION OPERATING BASES

(1) San Diego, California (Submarine base only) \$ 375,000

(2) Columbia River, Oregon 1,200,000

(3) Port Angeles, Washington 300,000

(4) Los Angeles (Aviation base only) 250,000

Expenditures Recommended

from current emergency funds, without specifying amounts, for leasing shore lands, docks, warehouses, stores, etc.

(a) TEMPORARY SUBMARINE OPERATING BASES

- (1) San Francisco Bay, California
- (2) Port San Luis, California
- (3) Monterey Bay, California
- (4) Humboldt Bay, California
- (5) Willapa Bay, Washington
- (6) Grays Harbor, Washington
- (7) Port Townsend, Washington
- (8) Bellingham Bay, Washington

(b) TEMPORARY AVIATION OPERATING BASES

- (1) San Francisco Bay, California
- (2) Morro Bay, California
- (3) Monterey Bay, California
- (4) Humboldt Bay, California
- (5) Coos Bay, Oregon
- (6) Grays Harbor, Washington
- (7) Lake Ozette, Washington
- (8) Port Townsend, Washington
- (9) Bellingham Bay, Washington

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